Volume 5
Number 49 *Miscellaneous insects.*

Article 1

July 2017

Miscellaneous insects.

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Iowa State College

BULLETIN 49 JUNE, 1900

IOWA AGRICULTURAL COLLEGE

EXPERIMENT STATION

AMES, IOWA

Department of Entomology

Miscellaneous Insects

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MISCELLANEOUS INSECTS.

H. E. Summers.

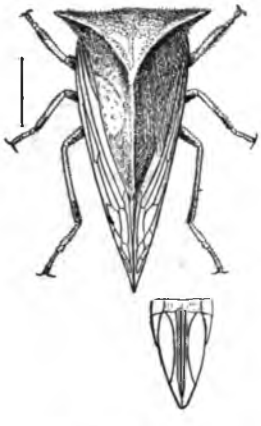
The insects described in this bulletin are at present very common in Iowa and inquiries are being so constantly received regarding them that it is deemed best to publish brief descriptions in this form.

With the exception of the scale insects, which are discussed in Bulletin 43 of this Station, more correspondence has been carried on during the past year concerning these species than about any others.

THE BUFFALO TREE-HOPPER.

[*Ceresa bubalus* (Fab.)]

This is a bright grass green insect whose peculiar form will be better understood by a reference to the figure than by a verbal description. The large horn like projections of the anterior angles of the thorax are popularly supposed to give this part a resemblance to the head of the male bison of buffalo, hence the name. It is found feeding upon all kinds of succulent vegetation, especially that growing beneath trees in orchards or groves. It seldom feeds upon woody shrubs or trees and then only on very tender shoots. Its chief damage is done to trees, however, which it injures by ovipositing in their twigs and branches.



CERESA BUBABUS
ADULT

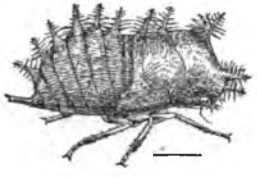
From about the first of August until hard killing frosts in the autumn the female may be found depositing her eggs.

One or two year old wood is usually selected, and ordinarily the upper side of the branch is attacked. A crescent shaped slit about three-sixteenths (3-16) of an inch long is made in the bark and in this a

row of eggs is placed. About an eighth of an inch from the first slit another similar one is made, the concave sides of the two being towards each other. These slits do not enter the wood perpendicularly to the surface, but slope towards each other, so that an oval piece of bark is entirely freed from the wood. This dies, and the bark around it continuing to grow, a depression or scar is produced which continues to increase in size for several years.

CERESA BUBALUS
EGG SCARS

If these scars are numerous, the whole branch becomes bark-bound, stunted, and warped out of shape. The eggs remain in the bark over winter, and from them there are hatched, in May or June of the following year, the young hoppers or nymphs. These differ considerably in form from the adults, as will be best understood by reference to the figures. They seek at once some succulent vegetation, which, as their powers of locomotion are limited, must necessarily be not very far from the trees in which they are hatched. A weedy orchard is at this time the most favorable place for their development.



CERESA BUBALUS
NYMPH

In July they transform to the adults. These by preference seek their food also in weeds and other tender plants, going to the trees only for oviposition.

EXTENT OF INJURY.

As is evident from what has been said of the food habits, the only appreciable injury to the trees is by the egg punctures. The harm is greatest in case of young trees. One of them badly attacked, even for a single year, becomes bark-bound and stunted so that it never recovers. A repetition of the attack for several years will kill it entirely. A badly injured young tree had better be replaced by a healthy one at once. In the case of old trees the damage is not so severe, but still one that is seriously attacked never makes a good growth and is weakened for several years. No orchard can pay if subjected to continual attack.

In the opinion of the writer, this insect has for the past few years done more injury to the apple trees of Iowa than any other species. Where it gains a foothold in nurseries, by reason of unclean culture, the trees are rendered unsalable excepting to the most careless buyer. In localities where the hopper is abundant the starting of young orchards in difficult, and cases have been observed where the attempt to start a small one on the farm had been abandoned because several plantings of trees had been successively ruined.

In addition to the apple, it has been observed doing serious injury to the cherry, and it occasionally lays its eggs in other fruit trees, as pear, plum and peach. Many shade trees are favorite places of oviposition, including cottonwood, maple, willow and elm.

In addition to the direct injury done by the hopper, the diseased spot caused by it may prove a favorable entering point for wood boring insects which would not attack a healthy tree.

There is a somewhat wide spread idea in many parts of the state that the scars made by the buffalo tree-hopper are caused by hail. The insect's habit of ovipositing mostly in the upper side of the twigs has lent additional support to this opinion in the minds of those upholding it. There should be no difficulty however in distinguishing between the irregularly formed abrasions made by hail, most severe on, and usually entirely confined to, the new shoots, and disappearing gradually so that the effects are scarcely visible after a year or two; and the regularly circumscribed scars caused by the insect, commonly made in wood a year or more old and becoming more and more conspicuous for several years.

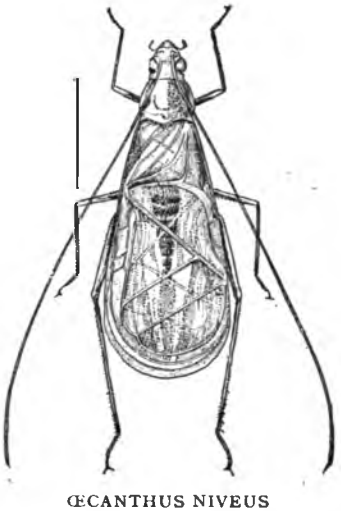
REMEDIES.

The diversity of food plants frequented by this insect, as well as the shyness and vigorous powers of flight shown by the adult, render the direct application of insecticides difficult or impossible. No practicable method for their destruction by this means has been devised. The fact, however, that the nymphs must find tender vegetation a comparatively short distance from the tree

in which they are hatched, makes it possible to starve them by following perfectly clean culture in the nursery or orchard during the summer months. This cleanliness must also extend to the fence rows and adjacent fields. If groves or woods with succulent undergrowth are adjacent to the orchard or nursery the hoppers will be propagated in this and some of them will, by means of their strong powers of flight, find their way to the fruit trees. The injury caused in this way will be comparatively slight, however, as most of the adults will deposit their eggs in the forest trees. Thorough pasturing of the groves or woods will decrease their numbers very much. In general it has been observed that the injury to orchards and nurseries has been in direct proportion to their weediness. In no case has a thoroughly cultivated orchard been found seriously injured.

THE SNOWY TREE-CRICKET.

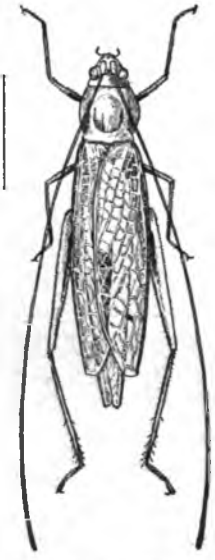
[*Oecanthus niveus* (Serv.)]



ŒCANTHUS NIVEUS
MALE

During the latter part of the summer, there may frequently be heard in the raspberry patches, throughout the entire day, the shrill notes of the Snowy Tree-Cricket. This is a pale green insect, with very transparent wings folded on its back when at rest. The form of the two sexes differs considerably, as will be seen by reference to the figures. It is only the male that makes the musical notes that so often attract attention to it.

In the autumn the female deposits her eggs in the twigs of the raspberry, apple, cherry, grape, peach and some other fruit trees. They are seldom found so abund-



ŒCANTHUS NIVEUS
FEMALE

antly however as to do serious injury except in the raspberry. The insect cuts diagonally two-thirds of the way through the twig with her sharp ovipositor and inserts an egg in the slit. Moving gradually along, she places several eggs in a row, the number being ordinarily from five to twenty.

The young develop in the autumn and the early spring within the shell and are frequently mistaken for small worms. In the spring they hatch, and the young feed, at least for the most part, upon other insects. As they grow older they also devour the tissues of the leaves that they may be upon, especially if the supply of insect food runs short. Although by the destruction of the foliage they may do some injury, they are very seldom so abundant that the harm done in this way is important. Their oviposition, however, so weakens the twig that it is likely to break off during the winter or in the early summer after the foliage has expanded so as to give the wind a better chance to act upon it. Sometimes the entire twig dies beyond the point where the eggs are laid.

ŒCANTHUS NIVEUS
EGG PUNCTURES

This insect is very common throughout the state, and is probably the most serious insect enemy of the raspberry. If not watched for and kept in check it is sure to become destructive in every raspberry patch of several years standing.

REMEDIES.

The variety of its food plants, and its universal distribution throughout the state, makes it impossible to entirely exterminate it in any locality. Constant watchfulness is the only safeguard. In cutting out the old wood, the twigs containing eggs should be carefully sought for and burned. If this is done every year,

the number will not become very great and the labor involved will really be very slight.

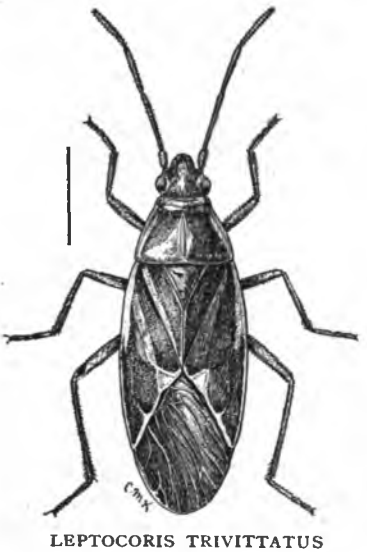
In case the crickets are already very abundant in the raspberry field, they may be destroyed by spraying with one of the arsenites after the last fruit has been gathered. This, combined with the destruction later of the eggs of any that may have escaped, will almost free a patch of them in a single season.

THE BOX-ELDER PLANT-BUG.

[*Leptocoris trivittatus* (Say.)]

Just after the first hard frosts in the autumn, a dark gray bug with red markings, about one-half an inch long and of the form shown in the illustration, often attracts notice by swarming into the houses and other buildings in search of a place to hibernate. During the summer this insect lives upon the box-elder, where it sometimes multiplies in enormous numbers, so as to seriously lessen the vitality of the trees.

During the first warm days of spring, the insects come from their hibernating quarters and seek the box-elder trees, laying their eggs in the crevices of the bark. The young which hatch from these grow rapidly and assume a deep red color, which they retain until their transformation into adult bugs, The eggs are laid during a considerable interval, and during the middle of summer bugs of all sizes, from those recently hatched to the adult insect, are found together on the trees. By autumn practically all of them have matured.



LEPTOCORIS TRIVITTATUS

When numerous, they have the habit of placing themselves in regular rows on the branches of the trees, attention being attracted to them often by the pecularity of this arrangement.

The chief injury of this insect is to the box-elder, though they occasionally feed upon other trees. Like all true bugs, they do not eat the tissue of the leaves or plant, but only suck its juices, causing the foliage to wither. The wide-spread indifference to the condition of our shade trees often results in this injury passing unnoticed, and by far the most frequent inquiries concerning them are received by the Entomologist in the autumn when they become somewhat of a nuisance by crawling into the houses.

Occasionally they feed upon, and cause some injury to the fruit of the peach, plum and apple.

REMEDIES.

Where so abundant to cause much injury, they may be destroyed by spraying the box-elder trees in mid-summer with kerosene emulsion, one part to nine parts of water. This will not only greatly increase the vitality of the trees for the remainder of the season but will largely obviate the nuisance caused by the bugs in the autumn.

In the autumn, they often form dense masses on the trunks of the trees, and at this time they may be readily destroyed by sprinkling with hot water.

INQUIRIES CONCERNING INSECTS.

The Entomologist is always glad to answer so far as possible inquiries regarding insects. Whenever possible, however, a specimen should be sent with the inquiry. Without this it is usually impossible to determine certainly what species is meant. Insects may be sent by mail with some of their food, enclosed in a tight box. Wooden patch boxes, to be obtained from any druggist, are the best. Tin boxes are also good; if neither of these can be obtained, a paste-board box may serve, although this very frequently becomes crushed in the mail.

Never punch holes in a box containing insects; the tighter it is the better. Do not send insects in an ordinary envelope.

Address all inquiries and specimens to State Entomologist, Ames, Iowa.